

Claims:

1 1. A polishing pad for a chemical mechanical  
2 polishing apparatus, comprising:  
3 a polishing surface;  
4 an aperture formed in the polishing surface, the  
5 aperture including a first section with a first dimension  
6 and a second section with a second, different dimension;  
7 a substantially transparent plug having a first  
8 portion positioned in the first section of the aperture and  
9 a second portion positioned in the second section of the  
10 aperture; and  
11 means for securing the plug in the aperture.

1 2. The polishing pad of claim 1 wherein the plug  
2 is made of a polyurethane material.

1 3. The polishing pad of claim 1 wherein the fixing  
2 means includes an adhesive material.

1 4. The polishing pad of claim 3 wherein the  
2 adhesive material is made of an elastomeric polyurethane  
3 material.

1 5. The polishing pad of claim 1 wherein the first  
2 portion of the plug has substantially the same dimension as  
3 the first section of the aperture and the second portion of  
4 the plug has substantially the same dimension as the second  
5 section of the aperture.

1 6. The polishing pad of claim 5 wherein the first  
2 portion of the plug includes a top surface which is coplanar  
3 with the polishing surface.

1 7. The polishing pad of claim 6 wh rein the  
2 thickness of the s cond portion of the plug is less than th  
3 depth of th second section of the aperture.

1            8.    The polishing pad of claim 6 wherein the first  
2    dimension is larger than the second dimension.

3           9. The polishing pad of claim 1 wherein the plug  
4 includes a rim.

1            10. The polishing pad of claim 1 wherein the fixing  
2 means includes an adhesive material located on the rim.

3 11. A polishing pad for a chemical mechanical  
4 polishing apparatus, comprising:  
5 a first layer having a polishing surface;  
6 a second layer adjacent to the first layer;  
7 an aperture through the first and second layers, the  
8 aperture including a first opening in the first layer with a  
9 first cross-sectional area and a second opening in the  
10 second layer with a second, smaller cross-sectional area;  
11 a substantially transparent plug positioned in the  
12 aperture, the plug having a first portion positioned in the  
13 first section of the aperture and a second portion  
14 positioned in the second section of the aperture; and  
15 an adhesive material fixing the plug in the  
16 aperture.

1            12. The polishing pad of claim 11 wherein the first  
2 layer has a first durometer measurement and the second layer  
3 has a second, smaller durometer measurement.

1 13. A method of forming a polishing pad, comprising  
 2 the steps of:  
 3 forming an aperture in a polishing pad such that the  
 4 aperture includes a first section with a first dimension and  
 5 a second section with a second, different dimension;  
 6 placing a substantially transparent plug in the  
 7 aperture, with the plug having a first portion positioned in  
 8 the first section of the aperture and a second section  
 9 positioned in the second section of the aperture; and  
 10 securing the plug in the aperture.

1 14. The method of claim 13 wherein the securing  
 2 step includes fixing the plug in the aperture with an  
 3 adhesive.

1 15. The method of claim 13 wherein the step of  
 2 forming the aperture includes removing material from the  
 3 polishing pad.

4 16. The method of claim 15 wherein the removing  
 5 step includes removing the first section from a first layer  
 6 of the polishing pad and removing the second section from a  
 7 second layer of the polishing pad.

Add  >